

EDEMA (OR OEDEMA)

This is another physiological disorder (like intumescence) that often afflicts crops earlier in spring, but the reason it happens is much better understood, which means it can be more easily managed. Edema occurs when turgor pressure (internal water pressure in plant cells) gets too high, which causes cells to rupture. The earlier you can catch edema symptoms and make necessary corrections, the better.



Water-soaked lesions on the undersides of leaves are one of the earliest symptoms. However, once ruptured epidermal cells have closed and lesions are no longer wet looking, they often resemble thrips damage.

As ruptured cells heal, they often take on a corky color. In severe cases, damaged cells develop into callused masses that resemble blisters. These blisters are almost always on the undersides of leaves and not visible from above, so growers often confuse this with rust, *Agrobacterium* or mite damage when it occurs.

Geraniums, particularly ivy geraniums (*Pelargonium peltatum*), are one of the most edema-prone spring bedding plants. Much like intumescence, some varieties are more sensitive to edema than others.

Edema occurs most often when substrate moisture levels remain high for extended periods and weather is cloudy and/or relative humidity is high. Be sure to avoid overwatering and allow for thorough wet-to-dry cycles between irrigation events to reduce this tendency.

Increase air flow in the greenhouse to encourage transpiration, even if weather conditions make reducing relative humidity challenging. A little more air movement can make a big difference to reduce edema incidences and severity.

Mild edema seldom affects overall growth and quality of plants, and symptoms subside as weather improves, but severe damage can cause reduce aesthetic quality and cause leaf senescence. Geraniums with lots of senescent leaves can rapidly become *Botrytis* factories, so be sure to clean up heavily edema-damaged foliage ASAP and apply a broad-spectrum fungicide as a protectant, if necessary.